ues to predict that 30 to 40 million persons will be infected with HIV by 2000. Globally, heterosexual transmission remains the predominant mode of spread. In the United States, epidemiologic studies reveal that HIV is increasingly prevalent in heterosexuals, racial and ethnic minority groups, women, poor people, and adolescents. More than 20,000 women in the United States have the acquired immunodeficiency syndrome (AIDS). Each year in the United States, 7,000 HIV-infected women give birth, and 25% of these infants become infected with HIV; AIDS is now the fifth leading cause of death in US children younger than 15 years. The recently completed AIDS clinical trial group study (ACTG076) evaluated the efficacy and safety of zidovudine in preventing maternal-fetal transmission in pregnant women with $CD4^+$ counts higher than 200×10^9 per liter (200 cells per mm^3). Administering zidovudine during pregnancy and delivery, as well as to infants during the first six weeks of life, reduced the risk of transmission by 66% ($P < .001$). The Food and Drug Administration has approved the use of zidovudine during pregnancy as a strategy to prevent vertical transmission. The US Public Health Service's official report summarized the study results, discussed limitations of the data, and issued recommendations for the use and monitoring of zidovudine during pregnancy. The long-term risks of fetal and neonatal zidovudine use are unknown.

Several factors, including high maternal viral load, prolonged rupture of membranes, and breast-feeding, increase the risk of vertical transmission. Recent reports on maternal viral load help to explain why, in general, only about 25% of pregnancies in HIV-infected women result in HIV-infected offspring. Determining the viral burden during pregnancy may identify women at highest risk and help direct counseling and treatment strategies. Quantitative polymerase chain reaction and other new methods of measuring the viral burden may be more powerful predictors of transmission than $CD4^+$ quantification or viral culture methods, but these are still being evaluated for clinical reliability.

Breast-feeding is also linked to vertical HIV transmission. Cases of AIDS have been reported in children whose mothers were infected by postpartum transfusions of HIV-infected blood. The transmission of the virus to the infant was thus thought to be related to breast-feeding during maternal primary infection when viral burden is extremely high. In developing countries, the benefit of breast-feeding, such as reduced infant mortality from diarrheal and other illnesses, is considered to offset the risk of HIV transmission. In the US, breast-feeding by HIV-seropositive women is strongly discouraged.

From the recent advances in maternal screening, viral quantification, and understanding of the predictors of transmission have emerged an encouraging picture of decreasing maternal-infant HIV transmission. Results from antiviral drug trials and epidemiologic reports, coupled with new technologies for quantifying viral load, provide us with a clearer image of the changing face of HIV infection and AIDS.

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Occupational Exposure to Latex

LATEX IS THE milky sap that is harvested from the rubber tree *Hevea brasiliensis*. During the manufacturing of latex products, many compounding agents are added. Adverse reactions to natural rubber products were first attributed to these added substances. Indeed, hand dermatitis to latex gloves, first reported 60 years ago, is usually a delayed (type IV) hypersensitivity reaction to thiuram or other additives. Evidence for immunoglobulin (Ig) E-mediated (type I) reactions to protein antigens in latex itself were first documented 15 years ago, and since then the incidence of such reactions has increased dramatically. This has been attributed to the implementation of universal precautions for infectious diseases that have greatly increased the use of latex gloves and apparently increased the antigenicity of latex products due to alterations in manufacturing to increase production. The amount of antigen in latex gloves is highly variable, ranging from 1 to 2,700 mg per gram. The most important factors in lowering the allergen content are leaching and steam sterilization. Laboratory studies have identified many possible antigens in latex, two in particular of 14.5 and 24 to 30 kd in size. The cornstarch used in latex gloves is itself nonallergenic, but latex particles can adsorb to the starch and become aerosolized, facilitating exposure.

The clinical presentation of latex allergy is variable and depends on the amount of available antigen in the product and the form of exposure. Reactions to gloves can be localized contact dermatitis or urticaria, but systemic urticaria and anaphylaxis have been reported. The most severe reactions to latex proteins have been associated with parenteral or mucosal contact, such as intraoperative exposure to gloves or gastrointestinal, oral, or genital mucosal exposures during barium enema or dental procedures.

Immunoglobulin E-mediated occupational reactions to latex products have been recognized since 1988. In one study of 57 health care workers and 67 other workers with occupational exposure to latex, the following symptoms were reported: contact urticaria in 79% of health care workers versus 72% of other workers, hand eczema in 42% versus 64%, conjunctivitis in 28% versus 16%, rhinitis in 16% versus 13%, facial edema in 14% versus 28%, generalized urticaria in 9% versus 13%, asthma in 2% versus 4%, and anaphylaxis in 7% versus 10%. Occupational allergy to latex antigen has been reported in surgeons, nurses, dentists, pharmacists, and radiology and other medical technicians. Recent surveys have found that 10% to 17% of all

hospital personnel, 7.4% of surgeons, and 5.2% to 10.7% of operating room staff are sensitive to latex.

The usual progression of symptoms seen in latex-allergic health care workers is first contact dermatitis or localized urticaria, and then systemic symptoms—generalized urticaria, rhinitis, asthma, and, rarely, anaphylaxis. Some nonmedical professions that involve latex exposure are kitchen work, the rubber industry, or the manufacture of rubber products such as toys, gloves, and rubber bands. The prevalence of latex allergy in these groups is less well known, but one recent study in a latex glove plant showed sensitization in 11% of workers.

The diagnosis of IgE-mediated latex allergy can be confirmed by skin prick or radioallergosorbent testing (RAST). There are currently no standardized commercial extracts for skin testing available in the United States, but such products are available in Canada and Europe. Several latex RAST allergens are available. Older RAST methods had only a 60% to 65% sensitivity rate, but newer tests recently approved by the US Food and Drug Administration have higher sensitivity rates.

Preventing occupational exposure of health care workers requires the use of nonlatex, low antigen-containing or powder-free gloves and latex substitutes for nonglove products. In operating rooms, the airborne latex allergen level can be high enough to cause respiratory symptoms in highly sensitized workers and patients. A future goal is the production of rubber products that have no or very low allergenicity.

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Value of Home Peak Flow Monitoring for Asthma Control

HOME PEAK FLOW MONITORING is recommended by the National Heart, Lung, and Blood Institute's National Asthma Education and Prevention Program: Guidelines for the diagnosis and management of asthma for all patients with asthma who are aged 5 years and older. The guidelines suggest that measuring peak flow is necessary in the management of asthma, in much the same way that blood pressure monitoring is necessary to manage hypertension and blood glucose monitoring is necessary to manage diabetes mellitus. Yet, controversy and resistance surround the use of home peak flow monitoring for the management of asthma. Many physicians consider it burdensome, unreliable, and of questionable value. Others find that they lack the training to effectively use the daily measurement records their patients bring them.

The peak expiratory flow rate is the fastest flow rate that can be sustained for 10 milliseconds during a maximal expiratory effort after full inspiration. The value obtained, in liters per minute on a home peak flow meter, is effort-dependent and, when a maximal effort is made, indicates the caliber of large airways. Peak flow is abnormally decreased only in patients with moderate to severe airway obstruction. Except when extremely low, absolute values are an unreliable guide to the severity of airflow obstruction because the range of peak flow is not linear in its clinical importance. A change of 100 liters per minute is more relevant at the lower end of the scale than at the upper end; but trends within individual patients are valuable over time.

Home peak flow monitoring is not without pitfalls, as the measure is effort-dependent, requiring a maximal expiratory effort. To increase the reliability of measurements, patients are instructed to make three maximal attempts and record the highest value. Performance technique may wane with time, however, and the best approach is to have the patient demonstrate the peak flow expiratory maneuver at each office visit. Other problems include inaccurate reading or recording and fungal growth inside the meter. The greatest pitfall of the current meters is their reliance on consistent and accurate patient self-measurement. Compliance can become a problem if the patient sees no value in making the daily measurements. Similarly, if patients are asked to make measurements and fill out diaries without being told what the numbers mean and what to do in response, compliance decreases considerably with time. Only when peak flow monitoring is tied to action plans that require the patient to understand the value and self-manage the illness do results improve.

When patients use peak flow measurements, both compliance and clinical outcomes appear to improve. Health care professionals must understand and explain clearly the implications of peak flow values for individual patients. When records indicate that a peak flow value has fallen substantially, the opportunity should be taken to explore the history of that event and to teach the patient the correct and most appropriate actions to take. When patients have taken appropriate action, it is important to use the opportunity to provide positive reinforcement. The directions for actions to take to manage asthma exacerbations must be explicit and specific to a person's clinical profile. For example, when a peak flow value falls to a predetermined level, the patient should be instructed to use rescue medication.

There are several possible advantages of home peak flow monitoring. Episodes of airflow obstruction, for which treatment is indicated, can be identified. Patterns of peak flow that suggest increased risk, such as morning dips or wide diurnal variation, can be documented. By matching objective measurements to subjective sensations, symptom recognition may be enhanced, especially in those with a poor perception of airflow obstruction. Home monitoring allows peak flow-guided self-management using self-adjusted medications—a true partnership approach between professional and patient. Finally, peak flow monitoring may result in more appropriate, less frequent, use of inhaled β-agonist rescue medication.

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